Contents

Editorial
C. Thomsen 7

* * *

A single trapped atom:
Light-matter interaction at the microscopic level
V. Gomer, D. Meschede 9

* * *

Quantum entanglement and quantum teleportation
Y. H. Shih 19

* * *

Atom optics: Old ideas, current technology and new results
D. E. Pritchard, A. D. Cronin, S. Gupta, D. A. Komorowski 35

* * *

Counting and entangling Planck's quanta with atoms in a box
S. Haroche, M. Brune, J. M. Raimond 55

* * *

Photoemission spectroscopy in solids
T.-C. Chiang, F. Seitz 61

* * *

Superconductivity and high-T_c superconductors
M. Cyrot 75

* * *

Quantum thermodynamics
K. H. Hoffmann 79

* * *

Quantum architecture of novel solids
A. Zunger 89

* * *

Matter-antimatter asymmetry of the universe
W. Buchmüller 95

* * *

The discovery of quarks
J. I. Friedman 109

* * *

Formation of the universe: From classical to quantum cosmology
H. Nicolai and M. Pössel 123

* * *

Particle Astrophysics with the AMANDA neutrino telescope
C. Spiering (for the Amanda collaboration) 131

* * *

Violation of matter-antimatter symmetry
K. Kleinknecht 133

* * *

The emergence of Quantum Schools:
Munich, Göttingen and Copenhagen as new centers of atomic theory
M. Eckert 151

* * *

Molecular beams entwined with quantum theory:
A bouquet for Max Planck
D. Herschbach 163

* * *

The quantization of the atom in three acts
J. S. Rigden 177

* * *

100 years ago 187